Appendix #1-DEQ 10-167F

Public Comments and Agency Responses on Issues relating to Enforceable Policies of the Virginia Coastal Zone Management Program

Federal Consistency Certification: Nuclear Regulatory Commission: Dominion Power Company, applicant: Combined Construction and Operating License and U.S. Army Corps of Engineers Permit for Third Reactor (Unit 3) at North Anna Power Station

May 9, 2011

In this Appendix, DEQ reprinted its April 7, 2011 Memo to Reviewing Agencies, which described public comments bearing on the Enforceable Policies of the Virginia Coastal Zone Management Program and asked for agency reactions or analysis of the comments. Responses received from reviewing agencies are reported under "***Agency Response***" in each case. Agencies and offices responding to our April 7 memo are:

DEQ, Northern Regional Office
Department of Game and Inland Fisheries
Virginia Marine Resources Commission.

In addition, the Department of Conservation and Recreation was invited to comment.

1. Agency: DEQ, through its Northern Regional Office (NRO), Office of Wetlands and Water Protection (OWWP), and the Office of Surface Water and Groundwater Planning (OSWGP).

A. Enforceable Policy: ***Point-source Pollution Control.*** The point source pollution control program is administered by DEQ pursuant to *Virginia Code* § 62.1-44.15 and 62.44.15.5. Point source pollution control is accomplished through the implementation of: (i) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to §402 of the Clean Water Act and administered in Virginia as the VPDES permit program, and (ii) the Virginia Water Protection Permit and Water Quality Certification under §401 of the Clean Water Act.

The North Anna Power Station has a VPDES permit (VA 0052541) covering the existing site operations. Dominion will request a VPDES permit modification to include Unit 3 discharges. Dominion has also applied for a Virginia Water Protection Permit/401 Water Quality Certification.

Public Comments: DEQ received comments from the following organizations: Friends of Lake Anna ((FOLA, 2,650 residents represented), the Virginia chapter of the Sierra Club, the Blue Ridge Environmental Defense League (BREDL), and the Sandy Point Property Owners' Association (11 signers) and over 60 additional comments. A number of these commenters enclosed or endorsed the comments of FOLA.

Consistency Finding: According to commenters, the construction and operation of Unit 3 at North Anna, as currently proposed, is inconsistent with the point source pollution control enforceable policy of Virginia Coastal Zone Management Program (VCP). FOLA and some commenters support the construction of a 3rd reactor, but requested that a federal consistency certification not be issued until all of the issues associated with the VPDES and Water withdrawal permit (VWP) for operation of Unit 3 are satisfactorily resolved. The issues raised are summarized below. Other commenters (26) indicated their objections to the construction of a third reactor.

(a) Virginia Pollutant Discharge Elimination System (VPDES)

Issue #1. ***Current Lawsuit:*** Several commenters stated that DEQ's approval of the FCC should await the final resolution of the lawsuit concerning application of the Clean Water Act to the cooling lagoons (e.g., the "hot side" of Lake Anna). The lawsuit alleges that the DEQ permit issued to Dominion in 2007 for Units 1 and 2 violates the Clean Water Act by allowing discharged water into the "hot side" which results in water temperatures exceeding a Clean Water Act standard of 89.6 degrees Fahrenheit in the months of May through October

Issue #2. ***Clean Water Act section 316(a) Variance:*** Two correspondents questioned the variance given to Dominion for hot water discharges from Units 1 and 2 pursuant to section 316(a) of the federal Clean Water Act. Commenters allege that the section 316(a) variance was misapplied because the "hot side" is not a "waste heat treatment facility" but part of the "waters of the United States" to which Clean Water Act protection is afforded.

Agency Response: In its "Response to Comments: VA0052451 – Dominion North Anna Power Station," DEQ-NRO addressed the section 316(a) issue as follows:

Dominion's application for the VPDES permit reissuance only includes the two existing units and does not address any future expansion of the power station. The 316(a) variance also only addresses the existing operations at the power plant. Any new discharge would require the VPDES permit to be modified prior to commencement of the new discharge, and a new 316(a) study conducted to determine if the additional discharge would have an impact on the temperatures of the receiving stream and the health of the fishery. [page 2]

Issue #3. ***High water temperatures in the cooling lagoons:*** According to some commenters (e.g., FOLA and BREDL), Dominion's existing VPDES permit violates the CWA for the following reasons. First, under the Clean Water Act (CWA), Virginia must protect the water quality of the lake, but the state failed to limit hot water discharges flowing from the North Anna nuclear reactors directly into Lake Anna.

Second, heat is a pollutant and the maximum water temperature in cooling lakes is set by federal law as 89.6 degrees Fahrenheit (F.). Lakeside residents report that water temperatures reached as high as 106 degrees F. The Lake Anna Civic Association (LACA) Water Quality Team has recorded 104.6 degrees F. at the end of

the discharge canal. LACA has also reported that waters in the North Anna River (3 miles before it enters Lake Anna) are 13 degrees cooler than the central part of the lake above the Route 208 Bridge. BREDL states that it has documented the serious harm to Lake Anna caused by excessive heat levels. The current limit of 89.6 F. for non-tidal waters established by the federal CWA has been violated many times by Dominion throughout the entire lake. FOLA asserts that according to the CWA, the effluent discharge into Lake Anna shall not be increased more than 6.3 degrees F. above the natural water temperature. LACA studies have shown the current natural North Anna River temperatures to be approximately 72 degrees F. Therefore, for compliance with the CWA requirements, Lake Anna water temperatures should not exceed 78.3 degrees F. under current conditions.

Third, the State Water Control Board applied the wrong law and analysis in concluding that part of Lake Anna was entitled to an exemption for waste treatment facilities.

Agency Response: In the Response to Comments cited in Issue #2 above, DEQ-NRO provided a lengthy response, which is presented here:

Dominion's license application to the State Corporation Commission (SCC) in 1968 for approval of the dam construction specifically acknowledges the distinction between the "reservoir" and the "treatment lagoons." The SWCB approved Dominion's application in 1968, and the SCC authorized the dam necessary to create Lake Anna and the treatment lagoons in 1969. The SCC, in authorizing the impoundment of the North Anna River, specifically acknowledged the creation and distinction between the 9,600 acre lake and the 3,400 acre cooling lagoons (Waste Heat Treatment Facility -WHTF). The dam was constructed by 1972. Both regulatory bodies recognized the difference between the lake and the WHTF.

The WHTF, used to cool the heated water from the power plant, is commonly referred to as the hot side of Lake Anna but from a regulatory role, it is classified as a waste treatment facility and not a surface water under the VPDES regulations. "Surface waters" is the legal term used in Virginia's VPDES regulation at 9 VAC 25-31-10 that describes the waters regulated by the SWCB. Under the VPDES regulation, the definition of surface waters excludes water bodies that are used as waste treatment systems. Sewage lagoons are also waste treatment systems. The Virginia Attorney General by letter dated November 30, 2006, opined that the SWCB does not have the legal authorization to impose thermal effluent limitations on the discharge by Dominion by its reactors at its North Anna Power Station into a series of connected cooling lagoons.

DEQ acknowledges that the WHTF is unique and a vestige of decisions made before the Clean Water Act and subsequent regulations. When the SWCB and SCC approved the construction of the dam and the creation of the WHTF, they clearly understood the role of the WHTF as a cooling lagoon and that several streams would flow into it. The draft permit continues to abide by the current VPDES regulations and the decisions the state made when authorizing the creation of the lake and WHTF.

Whether or not [sic] *the 10 streams that flow into the WHTF are "Waters of the United States" is not pertinent to the VPDES regulations. "Waters of the United States" is the legal term used in the federal Clean Water Act (CWA) that describes the waters regulated by the federal government under §§ 402 (NPDES program) and 404 (dredge and fill program) of the CWA. "Surface waters" is the legal term used in Virginia's VPDES and VWP regulations that describes the waters regulated by the SWCB. Accordingly, the SWCB does not regulate "Waters of the United States" under the VPDES program, [sic] it regulates "surface waters."*

Issue #4. **Point of compliance** for all Federal and State water permits should be changed from Dike 3 to the end of the discharge canal to provide protection afforded by the Clean Water Act for all cooling lagoon users. The U.S. Environmental Protection Agency (EPA) should re-evaluate the NPDES authority delegated to the Commonwealth of Virginia and ensure that the VPDES program is not less stringent than the national program. Federally delegated programs such as VPDES can be more stringent than the national program, but cannot be less. The Virginia State Water Control Board should ensure that monitoring of the VPDES program must begin at the end of the North Anna power plant discharge canal to protect the public.

Issue #5. ***Cumulative Impacts:*** According to FOLA, Dominion's Federal Consistency Certification focuses only on the proposed Unit 3 and does not consider the cumulative effects of Lake Anna's water temperatures with all three reactors running. Although Dominion indicates that the Unit 3 cooling method will only add minimal heat to the water that is discharged, FOLA points out that with Unit 3 using up to 32 or 37 million additional gallons per day, there will be less water in the lake to dissipate the heat from reactors 1 & 2. This, in turn, will cause the overall lake temperatures to rise to unhealthy temperatures for humans, fish, wildlife and aquatic species.

Agency Response: In response to the above issues relative to the VPDES permit, DEQ's Northern Regional Office (NRO) stated:

NRO has reviewed the comments with respect to VWP and VPDES regulations. All of the comments received as part of the CZM [coastal zone management, federal consistency review] process have been previously received and addressed by DEQ as part of the VWP and VPDES permit issuance processes….

With regards to comments received concerning the VPDES permit, specifically, the operation of and the temperature within the Waste Heat Treatment Facility, the SWCB [State Water Control Board] answered these questions when it issued VPDES permit VA0052451 in 2007. With regard to those comments concerning the appeal of that permit, … DEQ's position is that in accordance with the August 2010 Court of Appeals ruling, VPDES permit VA0052451 was prepared correctly and issued correctly and no alterations [sic] *is required.*

(b) Virginia Water Protection Permit for water withdrawal

Issue #1. ***Water Quantity:*** Most of the commenters indicated that the Lake does not have, or receive, enough water to meet the demands of a third reactor, in combination with the two existing reactors. FOLA referenced DEQ's Division of Water Resources 2005 response to the Draft EIS for North Anna's Early Site Permit which stated that the 342-square mile watershed sustaining Lake Anna seemed inadequate to support another water-cooled reactor. In its 2005 review, DEQ's Division of Water Resources looked at other nuclear reactors along the East Coast to compare the water resources available to them with the water resources available at North Anna. The conclusions drawn from that research are:

- Most of the intake locations are tidal and have an essentially unlimited water supply;
- Of the remaining locations, the North Anna location has the least abundant water supply, based on the average flow of a small watershed (342 square miles) and a medium-sized reservoir; and
- There is a limited number of nuclear power stations located on non-tidal rivers. In these cases, the power plants are on large rivers such as the Connecticut and the Susquehanna.

In fact, the only location remotely similar to North Anna's situation is the Oconee plants on Lake Keowee in South Carolina. However, immediately below Lake Keowee is Hartwell Lake, so the section of non-tidal stream affected by consumptive loss is very short.

Two comments, one by the Sandy Point Property Owners' Association, questioned whether things have changed since the DEQ 2005 review of the Draft EIS for the Early Site Permit. The Pacific Northwest Lab study in 2005 of Lake Anna and the effects of a third reactor did not address larger issues or the effects of the project on residents and recreational uses, but did show, with numbers relating to lake levels and downstream releases, that the effects of Unit 3 on the Lake, particularly in times of drought, would be "devastating." The third reactor, while not raising the consumptive use significantly because of the return flow, would elevate water temperatures and result in forced evaporation and reduced lake elevations (and downstream flows) in drought conditions.

Issue #2. ***Maintenance of water levels and flows in the Lake; water withdrawals; downstream flows:*** Closely related to Lake water temperatures (Issue #1 above) are questions relating to cooling water demand, hot water discharge, and the management of flows between the "hot side" and "cool side" as well as water level management in the Lake. Nine comments, as well as two from associations, expressed concern about drought cycles and how, in recent years, droughts have increased in central Virginia; seven, including two from associations, expressed concerns about water withdrawals for Proposed Unit 3, in light of the fact that Lake Anna occupies a small (342 square miles) watershed with limited capabilities for obtaining additional water – and, according to the association and four other commenters, a high rate of growth in residential and tourist demands for water. One association recommended permit conditions mandating

the use of up-to-date technology to obtain real-time monitoring of flows, rather than measuring lake levels and flows and submitting a report the following January as, according to the comment, the applicant proposes. The same association urges use of computer model formulas for the flows of water into and out of Lake Anna that are open and that provide for all sources of inflow, evaporation, current withdrawals, and total water available every month, as well as consideration of frequent (3-year intervals as in recent years) droughts.

Agency Response: DEQ-NRO addressed this issue at length in its "Summary of Staff Responses to Public Comments: Part III – Major Surface Water Withdrawal for Operational Activities and Lake Level Rise, Unit 3 at Dominion's North Anna Power Station, Joint Permit Application No. 10-2001. Stating that water conservation is a paramount concern during the review of a water withdrawal application, DEQ-NRO described Dominion's selected cooling system, the Lake Level Contingency Plan (LLCP, now a part of the VPDES permit but to be transferred to the VWP permit for Part III of the project), the In-stream Flow Incremental Methodology (IFIM) study (see Issue #2 under "B. Enforceable Policy: Fisheries Management," below), and concluded the discussion under a heading, "Draft VWP Permit for Major Water Withdrawal" as follows:

… staff anticipates developing permit conditions for a lake management scenario to include with the current LLCP. These conditions are anticipated to include conserving water through requiring dynamic cooling systems operations based upon lake elevation for the implementation of operating in EC [energy conservation] *mode or MWC* [maximum water conservation] *mode. Additionally, the applicant proposes to increase the elevation of Lake Anna by three inches to provide additional storage volume to mitigate the effects of the major surface water withdrawal on lake level and downstream of the lake.* [Pages 4-5]

Issue #3. ***Water quality impacts of the new reactor:*** Two commenters mentioned that start-up and construction activities for Unit 3 would involve the disturbance of suspected PCBs on the lake bed. Other commenters mentioned that copper and tributyltin (TBT), as well as biocides and algicides, would be added to cooling water discharges to protect reactor facilities and wastewater discharge equipment from build-up of organic wastes and impediments to the flow of cooling water.

Issue #4. ***Permit duration:*** The VWP permit term for Unit 3 is to be 15 years, according to one association and two individual comments, while the current VPDES permit for Units 1 and 2, issued in 2007, has a 5-year term. Commenters urge a shorter permit term for the VWP permit and annual monitoring of water flows in light of rapid population growth in nearby urban/suburban areas (Richmond, Fredericksburg, Charlottesville), as well as rapid changes affecting local water resources, such as growth in local population and related public needs, and increasingly frequent droughts, in Central Virginia. Several commenters urged a complete review and approval process before permit renewals.

Agency Response: DEQ-NRO addressed this question in its March 21, 2011 "Summary of Staff Responses to Public Comments: Proposed issuance of Virginia Water Protection Permit No. 10-1256: Part I – Surface Water Construction Related

Impacts." Answering a comment that all water permits related to the construction of the third reactor should be limited to 5-year terms, DEQ-NRO cited *Virginia Code* section 62.1-44.15.5(a) and said:

… VWP permits are allowed a maximum permit term of 15 years. This section of the law also states that the permit term shall be based upon the duration of the project, the length of any monitoring, project operations or any permit conditions. Therefore, applicants typically request a permit term length that allows sufficient time to complete the proposed permitted activities. For Part I, the applicant requested a 15- year permit term to complete surface water impacts related to construction activities and compensation requirements. The proposed permit term is acceptable. [Page 7]

Issue #5. ***Downstream impacts:*** Comments from 16 people included concerns about downstream impacts in the North Anna River attributable to water withdrawals, drought conditions, and lake level management. At least six commenters indicated that the question of downstream impacts had not been studied; two others expressed concern about fish habitat and fish life cycles. Several commenters expressed concern for the Pamunkey and York Rivers as well as the North Anna River.

Issue #6. ***Piecemeal permitting:*** Thirteen commenters, including FOLA, expressed concern with the permitting approach being taken by Dominion. Specifically, several commenters state that Dominion is being allowed to apply for permits in a piecemeal approach, with little coordination and a failure to address the "big picture." As FOLA indicates, water withdrawals for existing Units 1 and 2 are not regulated, and the amounts are not known to the public. The withdrawal sought for the operation of Unit 3 has risen in the past year from approximately 24 million gallons per day (MGD) to 32 MGD, while another permit application for construction asks for 750,000 gallons a day for the 15-year permit term. Moreover, Dominion has changed its proposed reactor from a Boiling Water Reactor (under consideration in the Early Site Permit application) to a Pressurized Water Reactor (under consideration in the application for a Combined Construction and Operating License), and several commenters believe this warrants a fresh environmental review. Six commenters and an association criticized Dominion for not obtaining necessary financial commitments or deciding that it intends to proceed with Unit 3, even as it causes public entities to incur processing expenses related to that unit's construction and operation.

Agency Response: DEQ-NRO addressed this question in the document cited in the discussion of Issue #4, above. DEQ-NRO stated:

Submittal of a VWP permit application is entirely at the discretion of the application [sic] and DEQ must address each application as it is received…. Issuance of a VWP permit for Part I of the project does not imply or assure the applicant of obtaining a permit for Part II… It is at the applicant's own risk to proceed without obtaining all necessary approvals … [Pages 5-6]

Similarly, in its March 21, 2011 "Summary of Staff Responses to Public Comments: Proposed issuance of Virginia Water Protection Permit No. 10-1496: Part II – Minor Water Withdrawal for Construction Activities," DEQ-NRO stated:

Staff reviews an application in light of the existing circumstances of the watershed, which includes existing uses and withdrawals. [Page 6]

Issue #7. ***Nuclear power plant safety.*** Thirty-five commenters discussed the earthquake and tsunami in Japan and expressed concern with the continuing release of radioactive materials from the Fukushima nuclear power plant. One commenter, writing before the news broke, indicated that nuclear power is safe and needed as an alternative to fossil fuels. The others recommended that permitting processes be put on hold until the Nuclear Regulatory Commission can evaluate what has happened in Japan and its implications for this country; a number of these commenters are among those who oppose Unit 3 outright, as mentioned above (see "Consistency Finding" above).

Issue #8. ***Lake Anna design***. Lake Anna was designed by Dominion and approved by VDEQ/NRC/FERC to have two different water levels: (1) main reservoir (250 feet MSL) and (2) three Cooling Lagoons (251.5 feet (251 feet, 6 inches) MSL) to provide for water flow between the cooling lagoons and main reservoir Recent water levels during the 2010 Winter/Spring indicated the cooling lagoon design water level was down 12 inches (from the 251.5 MSL to 250.5), while the main reservoir design level was up 3 inches (to 250.25), while Dominion permitted over 400 million gallons per day to flow over the dam. After many meetings between FOLA and Dominion, it seemed to FOLA that Dominion, using 1960s technology, cannot adequately maintain/regulate the design water levels on both sides of the lake throughout the year. *If one side is up/down 3 inches, then both sides should be up/down 3 inches, etc.* (Emphasis is FOLA's.)

Issue #9. ***Cumulative effects of all Lake Anna water withdrawals***. Dominion currently has water permits for Reactors 1 and 2, (but the public is unaware of how much Lake Anna water is being consumed, plus the withdrawal amount is not regulated) that have to be renewed each 5 years. They also have a water permit for operating their current sewage treatment plant that discharges its effluent into the cooling lagoons of Lake Anna. Last year, Dominion was requesting up to 24 million gallons a day or almost 9 trillion gallons per year just for the 3rd reactor operation. Dominion has now increased their estimated water usage by 33% to 32 million gallons a day which is over 11.7 trillion gallons per year. Another permit for construction activities is requesting 750,000 gallons of water per day for a maximum of 149 million gallons per year for 15 years. Dominion has also indicated plans to request other water permits expanding or creating a new sewage treatment plant at Lake Anna for its 5,000 to 7,000 construction workers and put its effluent back into the lake. Louisa County has applied for a water withdrawal permit from Lake Anna for human consumption since the Lake Anna area is in one of its top three growth areas. Hanover County (North Anna River downstream) also has existing and future water needs.

Agency Response: With regard to the 750,000 gallon-per-day figure, DEQ-NRO responded to public comments in its March 21, 2011 "Summary of Staff Responses to Public Comments: Proposed Issuance of VWP Individual Permit No. 10-1496: Part II – Minor Water Withdrawal for Construction Activities." The cited comment was that water withdrawal should not take place for construction activities during extended periods of low rainfall.

DEQ-NRO indicated that it had asked Dominion to analyze a 105-month period, the time frame for proposed construction activities, to determine potential effects on releases from the Lake Anna Dam and on water elevations in the Lake. The analysis assumed a daily withdrawal of 750,000 gallons, which is a conservative way to estimate because the maximum daily withdrawal would not be made during the entire period. The time frame evaluated was April 1, 1998 to December 31, 2006, during which there was a drought in 2002. DEQ-NRO stated:

Based upon the analysis, the construction water withdrawal operating at peak volumes over the entire 105 month period would decrease lake level on average annually 0.24 inch or an average of 0.12 to 0.24 inch monthly from the existing condition. Releases from the Lake Anna Dam would decrease within a range of 0.1-1.5 percent each month on average. … the results indicate that the construction water withdrawal will have a negligible impact on lake levels and Lake Anna Dam releases… [Page 1.]

Issue #10. ***Computer Model projections:*** According to FOLA, the Early Site Permit and Construction and Operating License water withdrawal and related permits, including the IFIM study, are based on computer model projections. Computer models were used to forecast that Lake Anna would support both recreation and water cooling for four nuclear reactors. However, previous DEQ watershed studies indicated that it might not even support a total of 3 reactors. Many respected hydrologists have questioned whether Lake Anna can actually support this proposed 3rd reactor with sufficient water withdrawals and not damage recreation or create higher water temperatures, which in turn may increase the bacteria count in the lake and cause many other problems identified elsewhere in the FOLA comments. FOLA recommends that the exact formulas be made available to the public for review prior to further considering a federal consistency certification. The model formulas should provide for all sources of water in-flow for each month of the year, evaporation, current permitted water withdrawals, and total water available in relation to design water levels on both the main reservoir and cooling lagoons for each month throughout the average year using only the last 10 years of data. It should also incorporate the previous DEQ analysis, increased 3-year drought intervals during the past decade, Louisa County water needs and data contained in State Water Control Board Bulletin #58 (which did not appear to be considered with the IFIM study or compensated by the 3-inch rise in water level), and the capability to forecast impacts if additional water is withdrawn from the lake. FOLA states further that the earlier DEQ analysis clearly indicates that the 3rd unit would increase the drought cycle and cause decreased water flows during March, April, May, June, July, August, and October (7 months) of each year.

Issue 11. ***Dry Cooling only for Unit 3.*** On March 15, 2011 (after the earthquake in Japan) FOLA submitted additional comments on the FCC. According to FOLA, the potential for dual disasters striking the existing and proposed reactors at North Anna (i.e., an earthquake which destroys the dam and also causes loss of power generation needed to provide cooling water to safely shut down the reactors) dictates that the proposed 3rd nuclear reactor should be cooled exclusively using dry air cooling (similar to Dominion's proposal for its 4th reactor during the Early Site Permit processing). Using dry air cooling would ensure that at a minimum one nuclear reactor (Unit 3) would

still be operational if the lake were drained because of a dam breach and there was insufficient water in the lake to provide for cooling reactors 1 and 2. Note the 1970 plans identified that it would take approximately 3 years to fill Lake Anna, since it is not adjacent to a free flowing river or ocean. This is also the approximate time period that all three reactors would be out of service if Unit 3 reactor cooling is not changed to dry cooling and a dual disaster struck the North Anna site.

Agency Response: In response to the above issues relative to the VWP permits, DEQ's Northern Regional Office (NRO) stated:

NRO has reviewed the comments with respect to VWP and VPDES regulations. All of the comments received as part of the CZM [coastal zone management, federal consistency review] process have been previously received and addressed by DEQ as part of the VWP and VPDES permit issuance processes….

The Virginia State Water Control Board (SWCB) issued two VWP permits, VWP Permit No. 10-1256 and VWP No. 10-1496, on April 15, 2011, authorizing impacts to surface waters from construction related activities and impacts from surface water withdrawals during construction related activities. In issuing the two permits, the SWCB determined that impacts to surface waters and the withdrawal of water for Unit 3 construction related activities are protective of Virginia's water quality standards if conducted in accordance with the permits.

*DEQ is currently working on a third VWP permit for a major surface water withdrawal for the operation of Unit 3. The attached [see "**OEIR Note**, below] summary of comments and staff responses includes comments concerning this withdrawal. As this permit process is ongoing, staff has no additional responses to those in the attachments; the SWCB will act on this permit later this year.*

OEIR Note: See DEQ-NRO attached summary of comments received and staff responses on this third VWP permit.

B. Enforceable Policy: ***Wetlands Management.*** The wetlands program purpose is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The Virginia Water Protection Permit program includes protection of wetlands, both tidal and non-tidal. It is authorized by *Virginia Code* section 62.1-44.15.5 and the Water Quality Certification requirements of the federal Clean Water Act of 1972, section 401.

Issue #1. ***Downstream Impacts:*** Comments from 16 people included concerns about downstream impacts in the North Anna River attributable to water withdrawals, drought conditions, and lake level management. Four commenters indicated that the question of downstream impacts had not been studied; two other expressed concern about fish habitat and fish life cycles. Several commenters expressed concern for the Pamunkey and York Rivers as well as the North Anna River.

Issue #2**.** ***Management of lake levels and flows with operation of Units 1 and 2, and impacts of Unit 3 operation.*** Two associations, along with 24 commenters,

expressed concerns about water level management and the sufficiency of water in the cooling lagoons and the main reservoir. FOLA stated that Dominion, in operating Units 1 and 2, is not maintaining the approved water levels in the cooling lagoons (251.5 feet above mean sea level (MSL) and the main reservoir (250 feet MSL); that spring 2010 water levels were 250.5 feet (down 12 inches) and 250.25 feet (up 3 inches), respectively, in the cooling lagoons and the main reservoir; and that Dominion is relying on old technology for water level control. FOLA seeks a commitment, on the part of DEQ to require, "real-time" monitoring of water withdrawals via water meters connected to intake lines, in order that DEQ may act immediately if permit requirements are violated, and so that the public may stay informed of water withdrawals. Eight commenters expressed concern regarding increased frequency of droughts in Central Virginia.

Agency Response: In response to the above issues relative to the VWP permits, DEQ's Northern Regional Office (NRO) stated:

NRO has reviewed the comments with respect to VWP and VPDES regulations. All of the comments received as part of the CZM [coastal zone management, federal consistency review] process have been previously received and addressed by DEQ as part of the VWP and VPDES permit issuance processes.

The Virginia State Water Control Board (SWCB) issued two VWP permits, VWP Permit No. 10-1256 and VWP No. 10-1496, on April 15, 2011, authorizing impacts to surface waters from construction related activities and impacts from surface water withdrawals during construction related activities. In issuing the two permits, the SWCB determined that impacts to surface waters and the withdrawal of water for Unit 3 construction related activities are protective of Virginia's water quality standards if conducted in accordance with the permits.

*DEQ is currently working on a third VWP permit for a major surface water withdrawal for the operation of Unit 3. The attached [see "**OEIR Note**, below] summary of comments and staff responses includes comments concerning this withdrawal. As this permit process is ongoing, staff has no additional responses to those in the attachments; the SWCB will act on this permit later this year.*

OEIR Note: See NRO's "Summary of Staff Response to Public Comments"

Part III- Major Surface Water Withdrawal for Operational Activities and Lake Level Rise, Unit 3 at Dominion's North Anna Power Station."

2. <u>Agency:</u> Department of Game and Inland Fisheries

A. <u>Enforceable Policy:</u> *State Tributyltin (TBT) Regulatory Program.* The TBT program monitors boat painting activities to ensure compliance with TBT regulations promulgated pursuant to legislation to control the threat that TBT poses to important marine animal species. The Virginia Marine Resources Commission (VMRC), the Department of Game and Inland Fisheries (DGIF), and the Department of Agriculture

and Consumer Services (DACS) share enforcement responsibilities under *Virginia* Code sections 3.1-249.59 through 3.1-249.62.

Public Comment: FOLA indicated its concern that Dominion will add concentrations of copper and tributyltin to the wastewater discharge into the cooling lagoons as a result of Unit 3 cooling, and that these amounts would not be measurable using DEQ analytical methods. In addition, Dominion intends to add concentrations of chemicals and/or biocides that are commonly used for water treatment, i.e., chlorination and de-chlorination, anti-scaling, and corrosion protection. FOLA asks for limits on such discharges in heated water to protect human health, wildlife, and aquatic life.

Agency Response: *In response to this public comment, DGIF stated the following:*

DGIF believes that Dominion has background data upon which future water monitoring can be compared to determine the level of any chemicals in the wastewater. DGIF assumes Dominion will have to meet water quality standards protective of human health and wildlife as determined by and monitored for by DEQ.

B. Enforceable Policy: ***Fisheries Management.*** This program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. The program is administered by DGIF under *Virginia Code* sections 29.1-100 through 29.1-570, and also by VMRC (see Agency #3, next).

Public Comment: According to FOLA, the federal consistency certification should not be approved until the IF IM study is corrected to ensure that the study reflects the following:

- the cooling lagoon design level of 251.5 feet MSL has not been maintained historically;
- the 3-year interval frequency of droughts during the past decade;
- anticipated Louisa County water needs and how they would be affected by the proposed 3-inch rise in lake level.

Agency Response: DGIF responded as follows:

DGIF reviewed and approved the IFIM study prior to it being performed and worked closely with Dominion during the study and analysis of the results. DGIF is comfortable with the results of the IFIM and how it was performed.

Issue #1. **Downstream impacts.** In discussing downstream impacts some commenters expressed concerns about what changes in downstream flows would mean to fish life cycles and fish habitat. Specifically, reduced flows attributable to the proposed 3" raising of the lake level, in combination with potentially higher water temperature from the third water-cooled reactor, might have adverse impacts on spawning, nursery areas, and feeding of striped bass and other fish populations in the North Anna River.

Agency Response: DGIF responded as follows:

DGIF is comfortable that the IFIM study appropriately assessed possible downstream impacts upon aquatic species and their habitats associated with the addition of a third reactor and the necessary water intakes required for operation of that reactor. DGIF evaluated a possible increase in lake water temperatures resulting from the addition of a third reactor and determined, based on modeling, that any increase in temperatures would be slight and would therefore not result in adverse impacts upon the aquatic community in the lake.

Issue #2. **IFIM Study.** According to FOLA, the In-stream Flow Incremental Methodology (IFIM) study focused on the main reservoir Lake design level of 250.0 feet MSL and Dominion's proposed increase of 3 inches to 250.25 MSL to provide the make-up water for the 3rd reactor. The IFIM study is negated by Dominion's proven inability to regulate the cooling lagoon design water levels. The IFIM study does not take into account that the design level of the cooling lagoons is not maintained at a consistent relation to the main reservoir level and could be down 12 inches or more at the start of a drought. Nor does it account for 3-year drought intervals during the past decade or for Louisa County water withdrawal needs.

If the cooling lagoons are down one foot (1,107,891,972 gallons) at the beginning of a drought and this water was taken from the main reservoir, then it would drop the water level in the main reservoir (1,107,891,972 / 260,680,464) = 4.25 inches. This would then negate the 3 inch rise that was being proposed to offset the impact of the up to 24 million gallons a day (now 32 or 37 million gallons a day) to be used by the 3rd reactor. In addition, Louisa County has indicated they have applied for a water withdrawal permit from Lake Anna for future local population growth needs, which is also not included in the IFIM study.

Formulas used by FOLA in critique of IFIM Study:

(a.) Cooling Lagoon: (3,400 acres x 43,560 sq ft per acre = 148,104,000 sq ft surface area / 12 inch @ foot = 12,242,000 x 7.4805 gals in one inch water depth = 92,324,331 x 12 inch per foot = 1,107,891,972 gals in one foot water depth-cooling lagoons.

(b.) Main Reservoir: (9,600 acres x 43,560 sq ft per acre = 418,176,000 sq ft surface area / 12 inch @ foot = 34,848,000 x 7.4805 in one inch water depth = 260,680,464 gals in one inch of water depth- main reservoir.

(c.) 3rd Reactor - 14 Million Gallons @ Day Annual Average.- 14,000,000 x 365 days = 5,110,000,000 gallons per year

(d.) 3rd Reactor - Up to 24 Million Gallons @ Day = 24,000,000 x 365 days == 8,760,000,000 gallons per year

Agency Response: With regard to the IFIM study, DGIF stated the following, in addition to the statement in response to public comments, above:

The IFIM study evaluated the flows needed to support aquatic resources in the lake and downstream waters. This investigation was independent of any issues surrounding the management of the Waste Heat Treatment Facility. At the time of the IFIM, a formal withdrawal request from Louisa County or any other entities for water from Lake Anna had not been submitted. Without a withdrawal request/application to consider, we could not evaluate any impacts such may have on lake levels. DGIF will have to address that once a formal application for a withdrawal has been made or during pre-application meetings for such a withdrawal request.

3. Agency: Virginia Marine Resources Commission

A. Enforceable Policy: *Fisheries Management.* This program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. The program is administered by VMRC under V*irginia Code* sections 28.2-200 through 28.2-713, and also by DGIF (see Agency #2, above).

Public Comments: At least 7 commenters stated their concern that downstream impacts on the North Anna, Pamunkey, and York Rivers due to increased water use to cool a third reactor have not been studied. One of these commenters specifies that current studies of potential habitat destruction, impact on recreational activities (and the economy derived from them), and restrictions on agricultural use and resulting crop failures around the Lake have been insufficient.

Agency Response: VMRC stated that its original comments apply, and that it has no additional comments. VMRC stated the following with respect to permit applicability under VMRC #10-1256:

As proposed, the project will require both a tidal wetlands permit from the King William County Local Wetlands Board for the Mattaponi River roll-off ramp and a VMRC subaqueous [bed encroachment] permit for the ramp, the North Anna River Route 30 temporary bridge crossing[,] and the proposed NAPS-to-Ladysmith Transmission Line for its aerial encroachment over the drowned North Anna River main channel within Lake Anna. These permits are required pursuant to the Virginia Tidal Wetlands Act ([sections] 28.2-1300 et seq. of the Virginia Code) and the Submerged Lands Act ([sections] 28.2-1200 et seq.).

OEIR Notes: VMRC's original comments on the Federal Consistency Certification were that permit actions would be processed under VMRC #10-1256 for different aspects of the project. VMRC stated that inter-agency meetings had been held on additional information needs for permit action, and that public hearings may be scheduled in coming months by VMRC and the local wetlands board.

B. Enforceable Policy: *State Tributyltin (TBT) Regulatory Program.* The TBT program monitors boat painting activities to ensure compliance with TBT regulations promulgated pursuant to legislation to control the threat that TBT poses to important

marine animal species. VMRC, DGIF, and VDACS share enforcement responsibilities under *Virginia* Code sections 3.1-249.59 through 3.1-249.62.

Public Comment: FOLA indicated its concern that Dominion will add concentrations of copper and tributyltin to the wastewater discharge into the cooling lagoons as a result of Unit 3 cooling, and that these amounts would not be measurable using DEQ analytical methods. In addition, Dominion intends to add concentrations of chemicals and/or biocides that are commonly used for water treatment, i.e., chlorination and de-chlorination, anti-scaling, and corrosion protection. FOLA asks for limits on such discharges in heated water to protect human health, wildlife, and aquatic life.

Agency/Applicant Responses:

(i) In its "Summary of Staff Responses to Public Comments not within the Purview of the VWP Permit Program, DEQ-NRO stated the following:

The discharge of wastewater is not within the purview of the Virginia Water Protection Permit program, but is governed by the VPDES program. The discharge of any wastewater will be addressed in the facility's VPDES permit (page 5, item 14).

(ii) Dominion stated:

Specifically regarding comments that Dominion plans to add concentrations of copper and tributyltin (TBT) to wastewater discharge, neither constituent is expected to be present in discharges from the North Anna Power Station, including Unit 3, due to plant processes. Copper and TBT have been detected in samples from Lake Anna and, therefore, may be present as preexisting constituents in discharges from Unit 3 that use Lake Anna water. (Letter to OEIR dated April 26, 2011, page 2.)